

WHAT?

WE SEEK TO IDENTIFY AND TRY NEW TOOLS FOR WILDLIFE MONITORING AND FIND FRESH SOLUTIONS TO IMPROVE HUMAN WILDLIFE COEXISTANCE. HOW?

- ✓ 1. start with a workshop to hack wilderness futures
- ✓ 2. capture and test ideas while involving new tribes in conservation
3. form a community of experts investing their skill into nature
4. design and redesign ways towards more impact on the ground

WHERE?



THE BISON HILLOCK

Located in the Țarcu Mountains, this is the second bison rewilding site in Romania, building on pioneer work done by Vanatori Neaamt Natural Park in the North-Eastern Carpathians.

WWF and Rewilding Europe are working together to create a stable free-roaming population in the Southern Carpathians.

Currently the European bison is a vulnerable species, counting a total of 5.000 individuals, of which 1.600 are living in the wild. *Bison bonasus* Lowland-Caucasian line is classified as endangered on the IUCN Red List.

The Bison Hillock sits within a valley of outstanding natural beauty located in a spectacular 59,000 hectare Natura 2000 area.



HOW WE DO IT

STEP 1 IMAGINE ✓



Hacking Wilderness Futures

Between the 7-10th of December, WWF Romania and Modulab brought together multi disciplinary professionals to imagine and design new ideas that can scale conservationists' efforts towards human wildlife coexistence. Our challenge was to identify new technologies and tools for real-time wildlife monitoring and mitigation of human-bison conflict.

Biologists, ecologists, wildlife conflict experts, social researchers, GIS experts, technological entrepreneurs, programmers and locals, from WWF UK, Flora and Fauna International, Zarand Association, ESRI, Vânători Neamț Nature Park, European Wilderness Society and more accepted WWF Romania's challenge and co-created a viable approach during the 4 day workshop.

STEP 2 RETHINK ✓



The hacking workshop delivered 3 routes of action:

1. A real-time low cost monitoring solution, focused on GPS tracking and radio transmission with potential to integrate several sensors such as an accelerometer. Trackers are based on LoRa transmission protocol offering extremely low battery consumption and high signal range. Our approach to overcoming the lack of connectivity in the area is a owned relay network across the bison home-range. The trackers would be assembled in an ear tag - put onto new bison relocated annually from breeding centers to the Bison Hillock rewilding site.

2. A data-crunching dashboard powered by ERSI webArcGIS and developer tools, i.e. automated analytics of real time presence, wildlife behaviour data, qualitative inputs about human activity, biometric parameters and Earth Observation Data. **A live decision-making app** to help rangers implement adaptive wildlife management of the bison and respond to specific pressures that favour free roaming bison from coming down to the villages.

This includes notifications based on virtual fencing, changes in behaviour or recent travel patterns and response to targeted supplementary feeding and pilot smell/sound deterrents. We also developed a very basic bison sighting app we want to trial in the local foresters and hunting community. First come community consultations and further design of an incentives - gamification component to motivate these gatekeepers to take on minimal responsibility for the wildlife which belongs to them - as official managers of the hunting grounds and forests.

3. Sensor triggered deterrents using a pool of repellants combining/varying between smell, sound, light - even the electric fencing. The choice of location, repellant used and activation of these deterrents will be made in correlation with the analytics resulting though real-time monitoring and decision-making. Both direct observation and machine learning will be used to evaluate the effectiveness of such methods, complementary of course with relationship building and education in the local community.

STEP 3 TEST



Our next steps

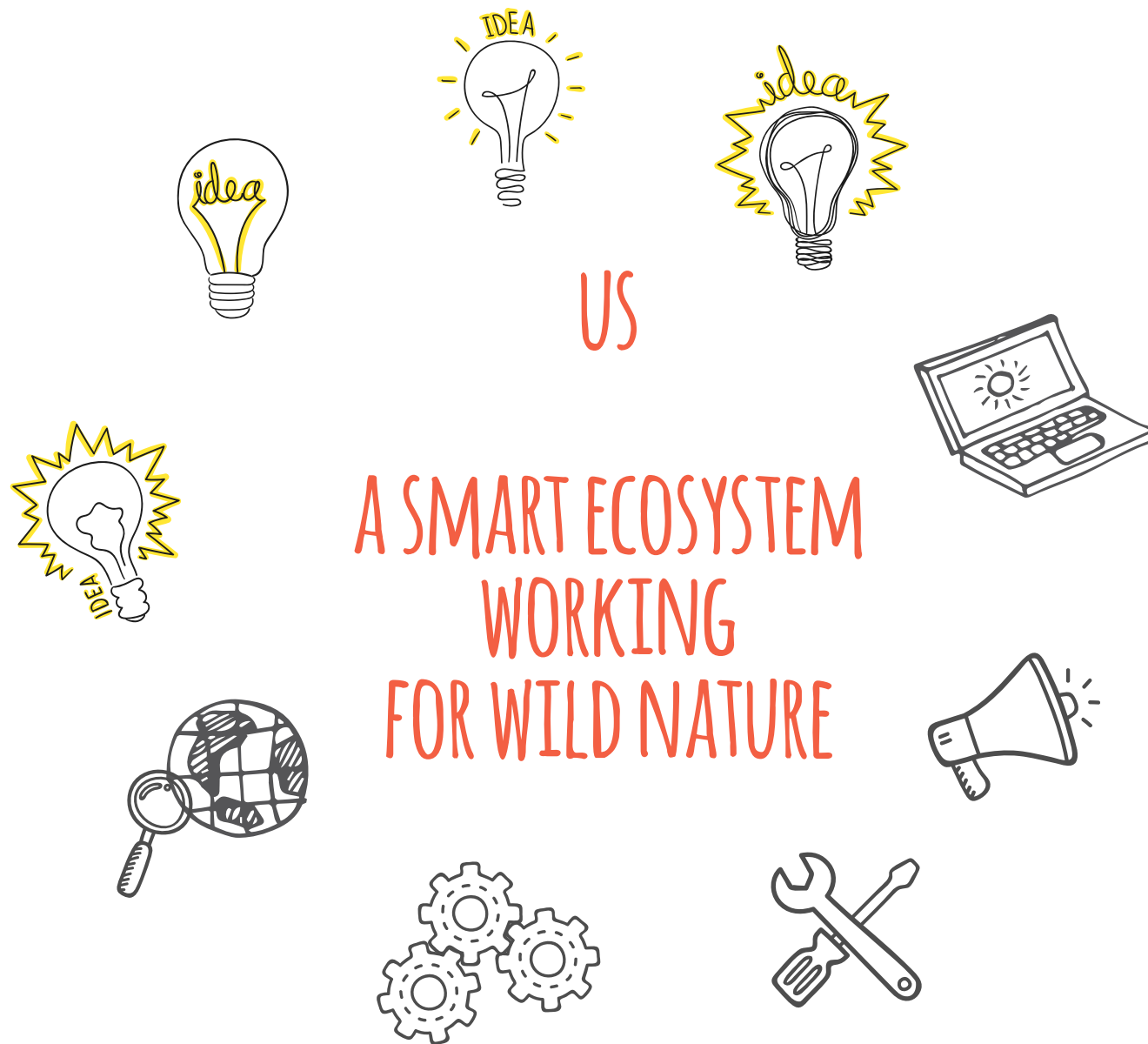
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| January | 1. Simulations to establish the field-testing plan.
In January, technicians will go to the area to test the relay network (expected to be around 3-5 relays which cover the current entire bison home range). |
| February | 2. Micro controller and sensor pack design+build and battery-life iterations with or without additional sensors. These could include a thermometer, hygrometer, heart rate monitor, acoustic sensors, even an infrared camera. |
| March | 3. Custom development of the analytics dashboard, integration with earth observation data, historical monitoring data - in close cooperation with ESRI, data scientists and coders. |
| April | 4. MVP of 3 sensor triggered deterrents using smell, sound and light. These will be tested initially in semi-wild conditions - in a bison breeding centre and during the acclimatization period of the 5th group of bison to arrive in Romania in May 2018. |

STEP 4 DO

CONSERVATIONIST, TECHY OR RESEARCHER? WE NEED YOU TO SCALE OUR IMPACT

1. Share your ideas, pitch in the ongoing prototyping. Join a working group in the WILDLABS community » [click here](#)
2. Start a research project around our challenge and mission, [get in touch](#) with the team.
3. Are you a technology provider and want to offer your knowhow, products or assembly lines? [Make a pitch](#) to help fix this challenge.

STEP 5 CHANGE





This initiative is led by WWF Romania and supported by the Swiss-Romanian partnership, WWF International and friends: Modulab, the Partnership Foundation, Impact Hub Bucharest, ESRI, Rewilding Europe, the Bison Hillock Association and many more.

WWF is the world's leading independent conservation body and our mission is to build a future in which people live in harmony with nature. Founded in 1961, we work in more than 100 countries, 5 continents and have more than 5 mil supporters worldwide. WWF Romania is a program office, established in Romania over a decade ago. It works on small and large scale conservation initiatives, conducting policy and advocacy work relating to protected areas, species, freshwater, forests and rural development.

In 2012 WWF Romania and Rewilding Europe joined forces to start an ambitious rewilding project, aimed at the restauration of natural processes specific to wilderness areas, by reintroducing bison, a missing link in the ecosystem. Together with local, national and international partners we are working to create a sustainable development model in the Southern Carpathians.

Our vision is to value one of the largest wilderness strongholds in Europe, as an engine for the economic development of the area. Rewilding Europe and WWF are committed to helping reach a viable free-roaming bison population in the Southern Carpathians, through annual ongoing reintroductions in the Bison Hillock.

For further info or if you wish to join forces, do get in touch:

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